



UT45N03

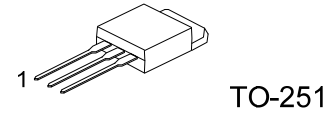
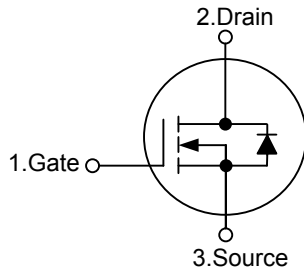
Power MOSFET

40A, 25V N-CHANNEL POWER MOSFET

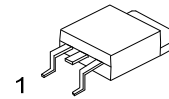
■ FEATURES

- * $R_{DS(ON)} = 21m\Omega$ @ $V_{GS} = 10V$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL



TO-251



TO-252

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT45N03L-TM3-R	UT45N03G-TM3-R	TO-251	G	D	S	Tube
UT45N03L-TN3-T	UT45N03G-TN3-T	TO-252	G	D	S	Tube
UT45N03L-TN3-R	UT45N03G-TN3-R	TO-252	G	D	S	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

UT45N03L-TM3-T		(1) Packing Type	(1) R: Tape Reel, T: Tube
		(2) Package Type	(2) TM3: TO-251, TN3: TO-252
		(3) Lead Free	(3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	25	V
Gate-Source Voltage	V_{GS}	± 15	V
Continuous Drain Current	I_D	40	A
Pulsed Drain Current (Note 1)	I_{DM}	160	A
Power Dissipation	P_D	65	W
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	50	$^{\circ}\text{C/W}$
Junction to Case	θ_{JC}	1.92	$^{\circ}\text{C/W}$

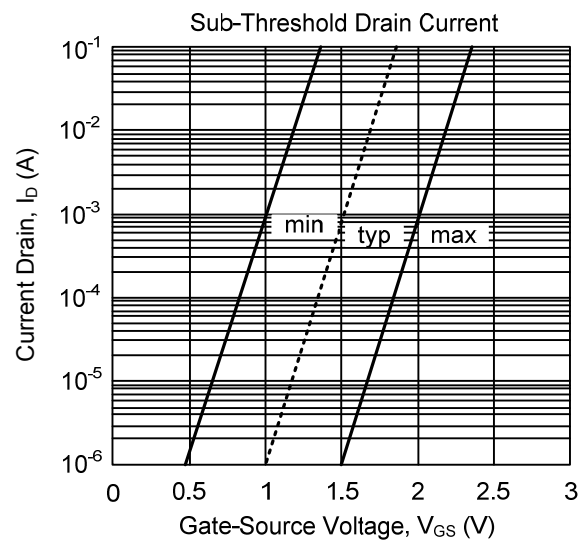
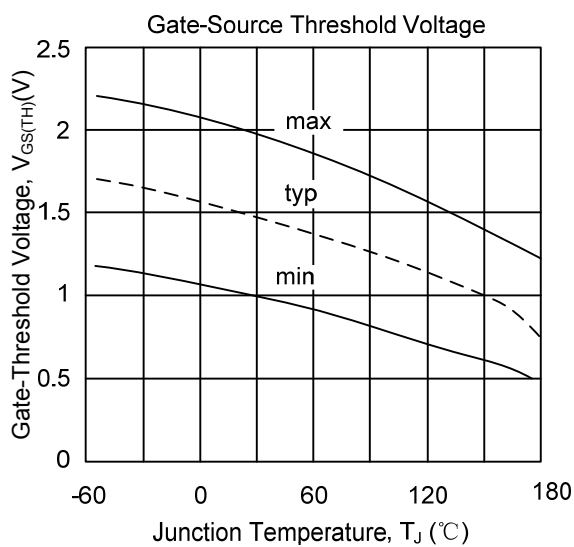
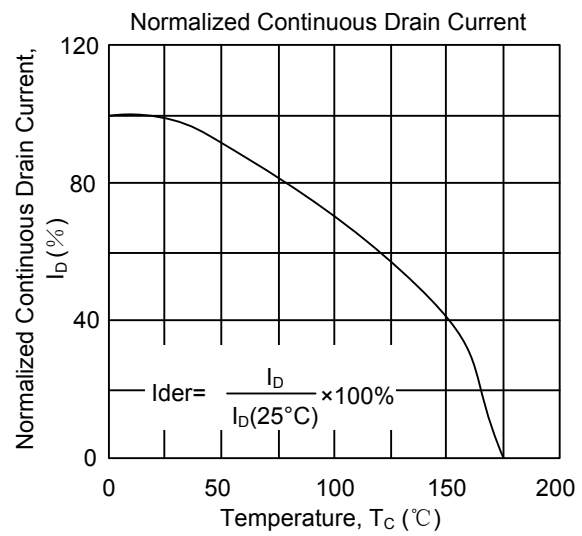
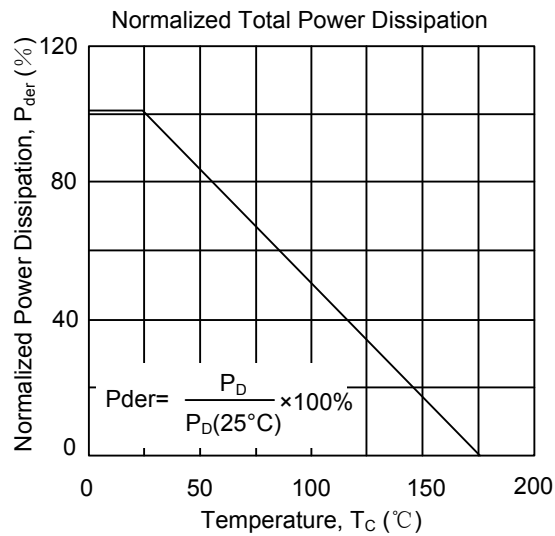
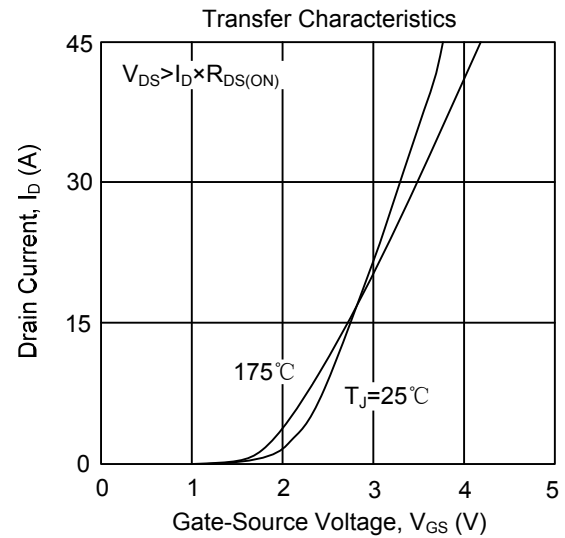
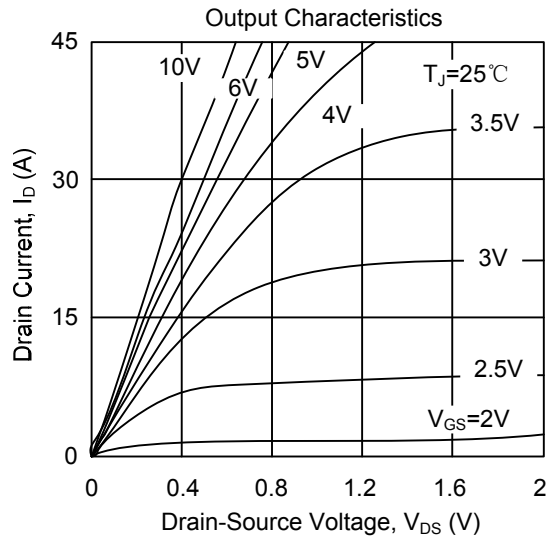
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	25			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =25V, V _{GS} =0V		0.05	10	μA
Drain-Source Breakdown Voltage	I _{GSS}	V _{DS} =0V, V _{GS} = ±5V		10	100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D = 1mA	1	1.5	2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =5V, I _D =25A		17.5	24	mΩ
		V _{GS} =10V, I _D =25A		13	21	
		V _{GS} =3.5V, I _D =5.2A		22	40	
		DYNAMICCHARACTERISTICS				
Input Capacitance	C _{ISS}	V _{DS} =25 V, V _{GS} =0V, f=1MHz		700		pF
Output Capacitance	C _{OSS}			290		
Reverse Transfer Capacitance	C _{RSS}			200		
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{GS} = 10 V, V _{DD} =15 V, I _D = 15 A, R _G = 6 Ω		10	20	ns
Turn-ON Rise Time	t _R			60	90	
Turn-OFF Delay Time	t _{D(OFF)}			35	60	
Turn-OFF Fall-Time	t _F			40	60	
Total Gate Charge	Q _G	V _{DD} =24V,V _{GS} =5V, I _D =40 A		19		nC
Gate-to-Source Charge	Q _{GS}			5		
Gate-to-Drain Charge	Q _{GD}			8	11	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =25A,V _{GS} =0V		0.95	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				40	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				160	

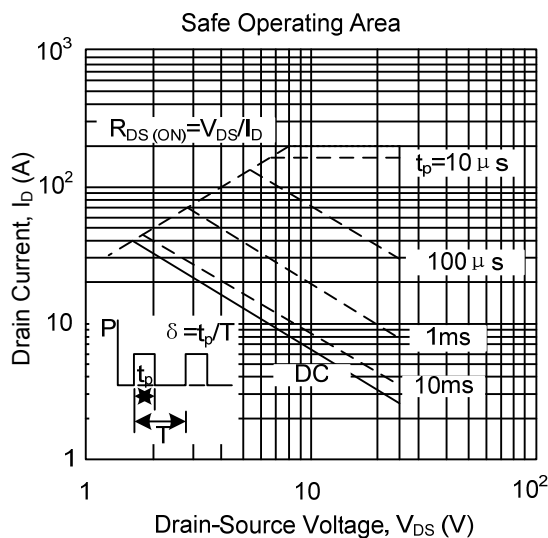
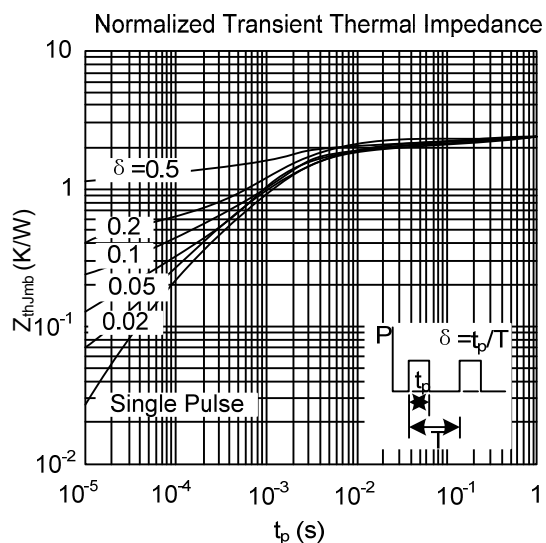
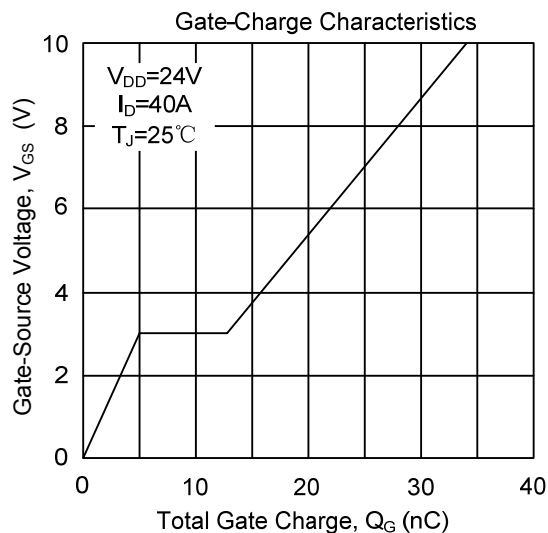
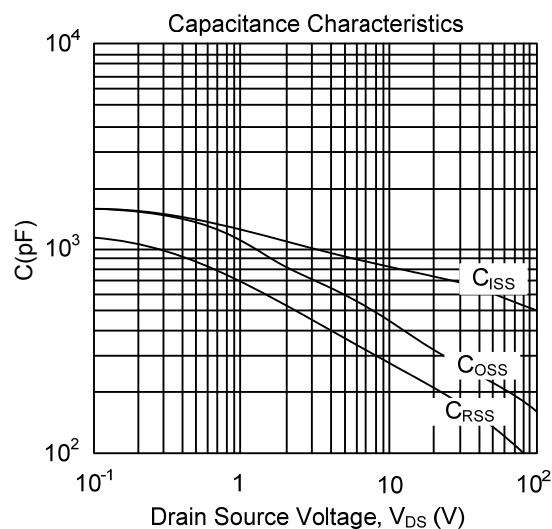
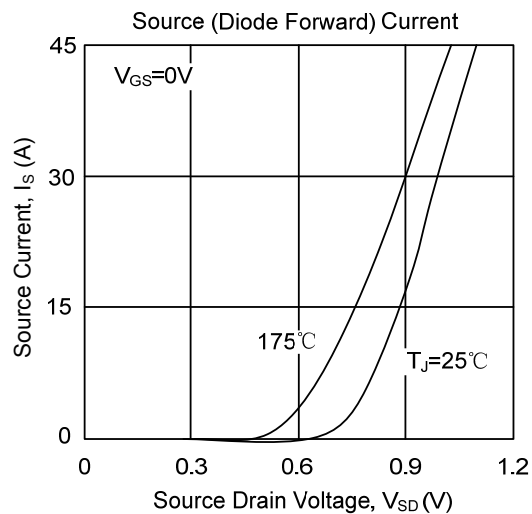
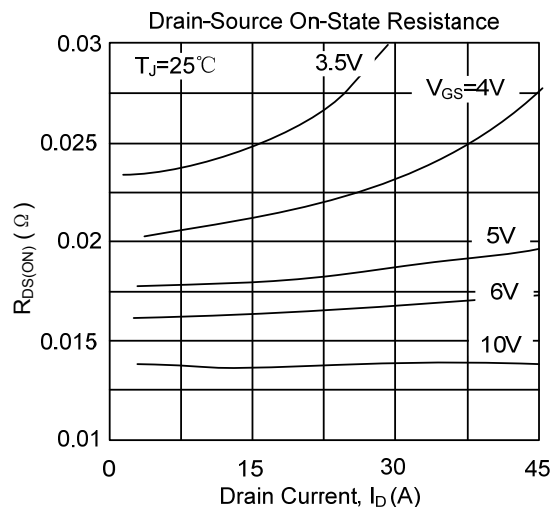
Notes: 1. Pulse width limited by $T_{J(MAX)}$

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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